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This study was designed to answer two major questions: (1) whether or not operant conditioning procedures supplemented by treatments drawn from other areas of experimental psychology could produce changes in counselor interviewing behavior, and (2) how much change resulted from response specific reinforcement and how much from other factors. Three counselor-subjects were assigned to a contingent reinforcement treatment, and three to a noncontingent reinforcement treatment. An A-B-A "own control" design was employed with some modification. In the operant level phase, each counselor subject conducted a 45 minute interview without reinforcement or instructions. A two-part acquistion phase was used: (1) vicarious reinforcement in which the experimenter, sitting with the counselor subject, signalled to a counselor confederate when he emitted approved responses and later asked the subjects to emulate the confederate's behavior, and (2) three direct reinforcement interviews in which approved counselor subject behaviors were reinforced. Contingent, noncontingent, and vicarious reinforcement affected changes in total response frequency and in frequency rate of target cells when accompanied by attempts to maximize expectancy effects and experimenter effects. (PS)

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OPERANT CONDITIONING OF WITHIN-INTERVIEW VERBAL BEHAVIOR OF COUNSELORS-IN-TRAINING

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This study is similar in most respects to Hellervik's (Hellervik, 1968). Counselors and clients were drawn from the same sources; the same A-B-A operant conditioning design and the same light signal apparatus were used. Similarly, the Hill Interaction Matrix (Hill, 1965) was used to define the dependent variables - which were confrontive and relationship statements.

Although there were many similarities between Hellervik's and this research, the remainder of the paper will concentrate on aspects which differentiate it from his. It might be said in preparation that Hellervik studied main treatment effects; whereas this study concentrated on the error term.

Experimenter Differences and Expectancy Effects

Rosenthal's 1966 book, Experimenter Effects in Behavioral Research, provides thorough analyses of two major sources of "error" in experimental research. The first source of "error" is labeled Experimenter Differences and deals with the observation that experimenters with certain personality or behavioral characteristics get "better" results than other experimenter. The phrase "better results" is used in the sense that larger learning and performance effects are obtained. A number of studies indicate, for instance, that experimenters described by subjects and/or independent observers as warm obtain "better" results than experimenters described as cold or neutral.

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The second major source of "error" analyzed by Rosenthal is labeled Expectancy Effects and is related to the often-cited historical observation that a person's beliefs or predictions about forthcoming events seem to effect these events in the direction of the beliefs or predictions. Merton's (1957) phrase, "self-fulfilling prophecy," is probably the most frequently used description of this phenomena. Counseling psychologists familiar with Goldstein's work in expectancy effects in counseling or industrial psychologists who have used the term "Hawthorne effect" are already acquainted with this phenomena.

Research Strategies

There are at least two approaches to such "error" in experimental research. One approach leads to increased public replicability among interested professionals and consists of controlling or eliminating variance which is not specific to the parameters of the model or theory (e.g., operant conditioning).

Another approach leads to procedures aimed at employing error variance in the service of maximizing changes in the variables under consideration. This approach is strongly urged by clinicians-researchers such as Krasner and Ullmann (1965), who argue that questions about main effects versus error variance are less important to the practitioner than the development of more powerful treatment procedures. Consequently, if warm persons are better reinforcing agents, then warm persons should be selected to do the reinforcing.

Maximizing Likelihood of Change

The current study, since it was primarily directed at testing a method of training practitioners, chose the Krasner and Ullmann approach. The

literature on verbal operant conditioning, expectancy effects, and experimenter effects was reviewed with intent to derive prescriptive summary statements from each of the areas aimed at maximizing the likelihood of change in counselor production of confrontive-relationship statements.

Such prescriptive summary statements read as follows:

First, verbal conditioning effects are maximized if the behavior, which is to be changed is highly valued by the immediate sub-culture, is at a low operant level, and can be clearly defined and labeled by the subject. Learning is enhanced if acquisition is extended over a number of sufficiently long trials, if the subject is motivated to perform, and if he has a problem solving orientation to a task which he considers meaningful. The experimenter should present the reinforcing stimulus clearly, consistently, and immediately after the response. The power of the reinforcer is enhanced by employing stimuli which have been demonstrated to be effective with similar persons, telling subjects what the stimuli "mean," having some assurance from pilot efforts that the stimuli work, and pairing the stimuli with extrinsic reinforcers. Vicarious reinforcement in which the subject observes a high status model being reinforced a large number of times augments direct reinforcement. Other augmenting procedures such as elicitation, baiting the bar, and shaping should be used as well.

Second, expectancy effects are enhanced when subtle attempts are made to ensure that the subjects will try to be good subjects, guess the experimenter's hypotheses, fit the current task into what they know of psychology, and help the experimenter get results. The experimenter, in turn, has had his hypotheses validated by early data returns; has a superior who considers

him intelligent, resistant to manipulation, and good at the experimental task; has prior acquaintanceships with the subjects; and will not receive "excessive" rewards for "good results."

Third, experimenter differences effects are enhanced if the experimenter has the following characteristics: warmth, high status, needs approval from others, but is not highly anxious about it; not hostile nor authoritarian, is the opposite sex as the subject and is preferably a male; is seen as professional and competent; behaves consistently, importantly, dominantly, and businesslike; is seen as likable, relaxed, interested, enthusiastic, and personal. It is especially important that he communicate this professional-likable quality through his non-verbal behavior. He also avoids an overly personal tone of voice, speaks softly, expressively, and non-monotonously.

Basic Design and Methods

This study was designed to answer two major questions. The first was whether or not operant conditioning procedures supplemented by treatments drawn from other areas of experimental psychology could be used to effect changes in complex classes of counselor interviewing behavior. Procedures adopted from verbal operant conditioning studies constituted the main treatment and attempts were made to maximize the power of the treatment by supplementing the main treatment with procedures drawn from research in expectancy effects in behavioral research and experimenter differences in the psychology experiment.

The second major question with which this study was concerned was the following: Given that all effects were made to maximize change in the

experimental situation, how much of the change could be attributed to response specific reinforcement and how much to other factors (e.g., expectancy effects, experimenter, bias, etc.). An attempt was made to answer this question by assigning three experimental counselors to a contingent reinforcement treatment and three to a noncontingent (or random) reinforcement treatment. In the contingent reinforcement procedure , reinforcement was given when counselor-subjects made certain specific kinds of statements. In the noncontingent reinforcement procedure, the same average numbers of reinforcers were presented to the counselors as were presented to the contingent group, but, in this treatment, reinforcement was not contingent on specific kinds of statements. The contingent and noncontingent treatments differed only on the basis upon which reinforcement was presented. Both groups were treated identically in all other respects.

Design

A basic A-B-A "own control" design used in most verbal conditioning studies was employed with some modification. The base rate or operant level phase consisted of each counselor subject conducting one 45-minute interview without reinforcement or instructions. There were two parts to the acquisition phase. The first part consisted of vicarious reinforcement in which the experimental counselors observed a counselor-confederate of the writer conduct an interview in the experimental setting. The counselor subjects sat behind the one-way vision window with the experimenter while the latter signaled to the confederate whenever he emitted approved

behaviors, This part of the acquisition phase also included a post-vicarious reinforcement interview in which counselor-Ss were instructed to try to emulate the behavior of the confederate. The second part of the acquisition phase consisted of three 45-minute direct reinforcement interviews with clients in which the counselor-Ss were reinforced for approved behaviors. The last phase consisted of a 45-minute transfer interview in which the counselors did not receive reinforcement. There were, then, seven interviews in all - six of which were conducted by counselor-Ss, and one by a confederate of the E. All of the interviews were "initial contacts" - that is, counselors saw different clients in each interview.

Results: Contingent Reinforcement

Figure 1 displays results based on separate analyses of frequency data for each counselor for both total response frequency (solid lines) and frequency of emission of confrontive-relationship behaviors (dotted lines). There is a slight tendency for total response frequency to increase during acquisition. This tendency is consistent, however, only for counselor number 3 whose responses are represented by circles. Second, looking at frequency of emission of confrontive-relationship statements (dotted lines), it can be observed that all counselors emitted more such behaviors in acquisition than in either the base rate or transfer interviews. The most prominent feature of this figure is the between subjects differences in numbers of confrontive-relationship statements.

Results: Noncontingent Reinforcement

Figure 2 displays total response frequencies (dark lines) and frequencies of confrontive-relationship statements (dotted lines) for subjects given noncontingent reinforcement.

As can be seen, there were large gains in total response frequency under noncontingent reinforcement. All three subjects doubled or nearly doubled operant level total response frequencies in at least one acquisition interview. It can also be observed that there were increases in emission of confrontive-relationship statements during acquisition. None of these counselors emitted a single such statement during base rate; but all emitted at least 10 confrontive-relationship statements in at least one acquisition interview.

Results: Comparison of Contingent and Noncontingent Reinforcement

Figure 3 employs percentage or rate data to compare the effects of contingent (dark lines) and noncontingent (dotted lines) reinforcement. The percentages were calculated by dividing numbers of confrontive-relationship statements by total numbers of recorded statements per interview. Again, aside from the observation that there are large individual differences between subjects and that both kinds of reinforcement had the effect of increasing rate of emission of confrontive-relationship statements, not much can be said.

There seems to be somewhat more consistency and slightly greater performance gains under contingent reinforcement; but there is sufficient ambiguity for the operation of a wide variety of biases and imaginative interpretations.

It must be stated at this time that the foregoing remarks were based on experimenter's ratings of counselor statements. Ratings by independent judges (see Figures 4 and 5) were also obtained and do not consistently corroborate experimenters' ratings. Curves based on judges' ratings are similar in shape to those of experimenters; but the experimenters' curves are most often (not always) more peaked. Such observations indicate that reliability is an elusive commodity and the results reported here should, therefore, be read in that light.

CONCLUSIONS

Contingent, noncontingent, and vicarious reinforcement effected changes in total response frequency as well as frequency and rate of target cells when accompanied by attempts to maximize expectancy effects and experimenter effects. It appears also, that various kinds of reinforcement have different effects. Noncontingent reinforcement seems to have its major impact on total response frequency; whereas contingent reinforcement is more response specific. All of the counselors in contingent and noncontingent reinforcement groups did show performance effects. Three of the counselors exhibited large changes after vicarious reinforcement, whereas the other three changed only under direct reinforcement conditions. It is difficult to interpret the effects of noncontingent reinforcement. It might be suggested that such subjects were probably on a variable ratio reinforcement schedule for "verbalizations-in-general." This would explain the sharp increase in response frequency. A similar explanation could be offered with regard to increases in frequency of target cell behaviors. This explanation does not, however, do much to account

for changes in percentage of emissions of target cell behavior. Another reasonable explanation might be that vicarious reinforcement was the effective ingredient in generating conditioning effects. Evidence for this explanation is the fact that two of the three noncontingent counselors peaked on the post-vicarious reinforcement interview. The third counselor, however, complicates matters. She did not emit a single target cell behavior after VR, but made steady gains in emission of target cell behavior in DR and transfer. An explanation offered by one University of Minnesota psychology staff members was the noncontingent reinforcement may act like "alcohol at a party. People tend to get more confrontive and relationship oriented after they've had a few." Maybe noncontingent reinforcement has similar lubricating qualities.

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Figure 1: Total Responses and Total Target Cell Behaviors (Contingent Reinforcement)

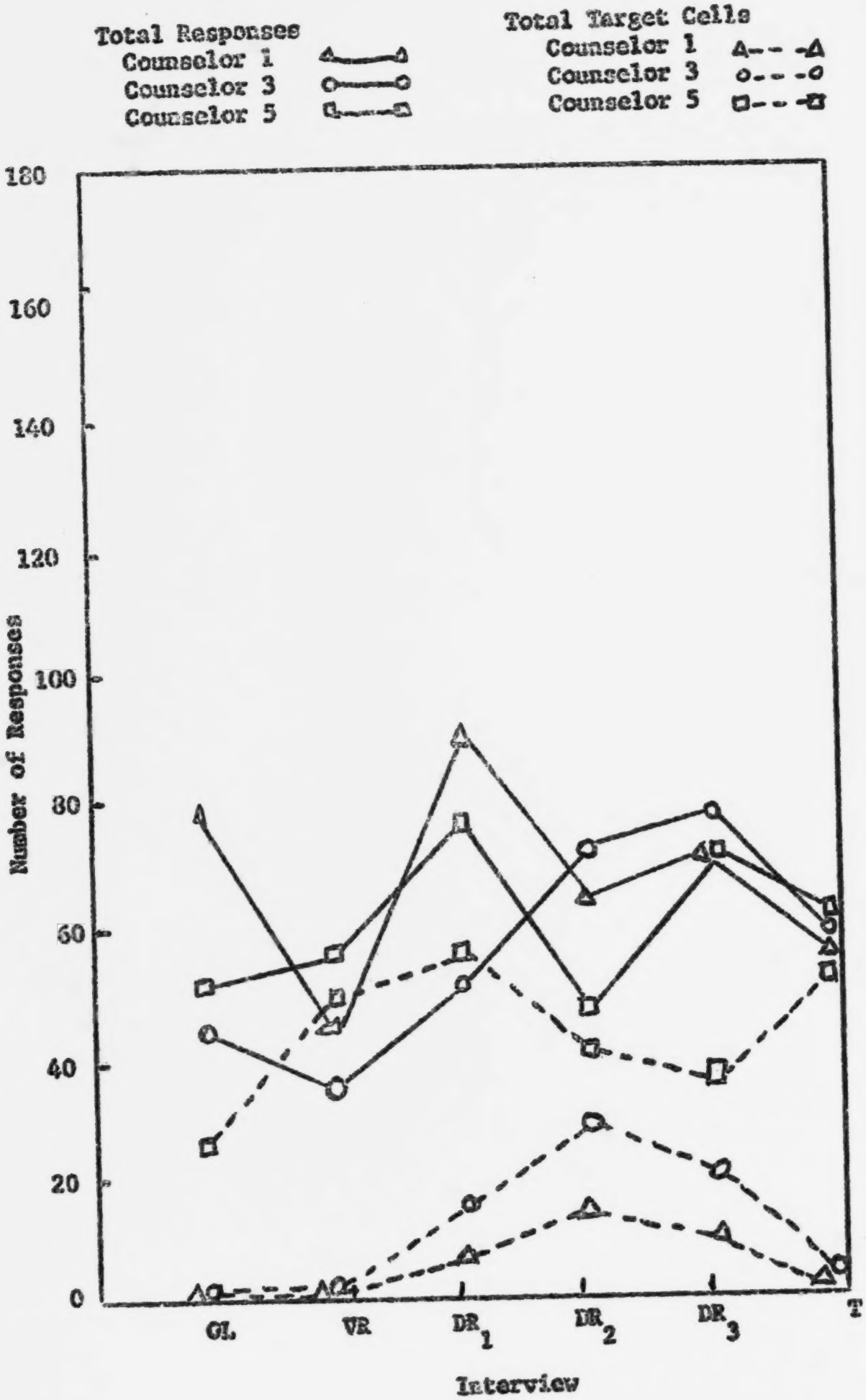

Figure 2: Total Responses and Total Target Cell Behaviors (Noncontingent Reinforcement)

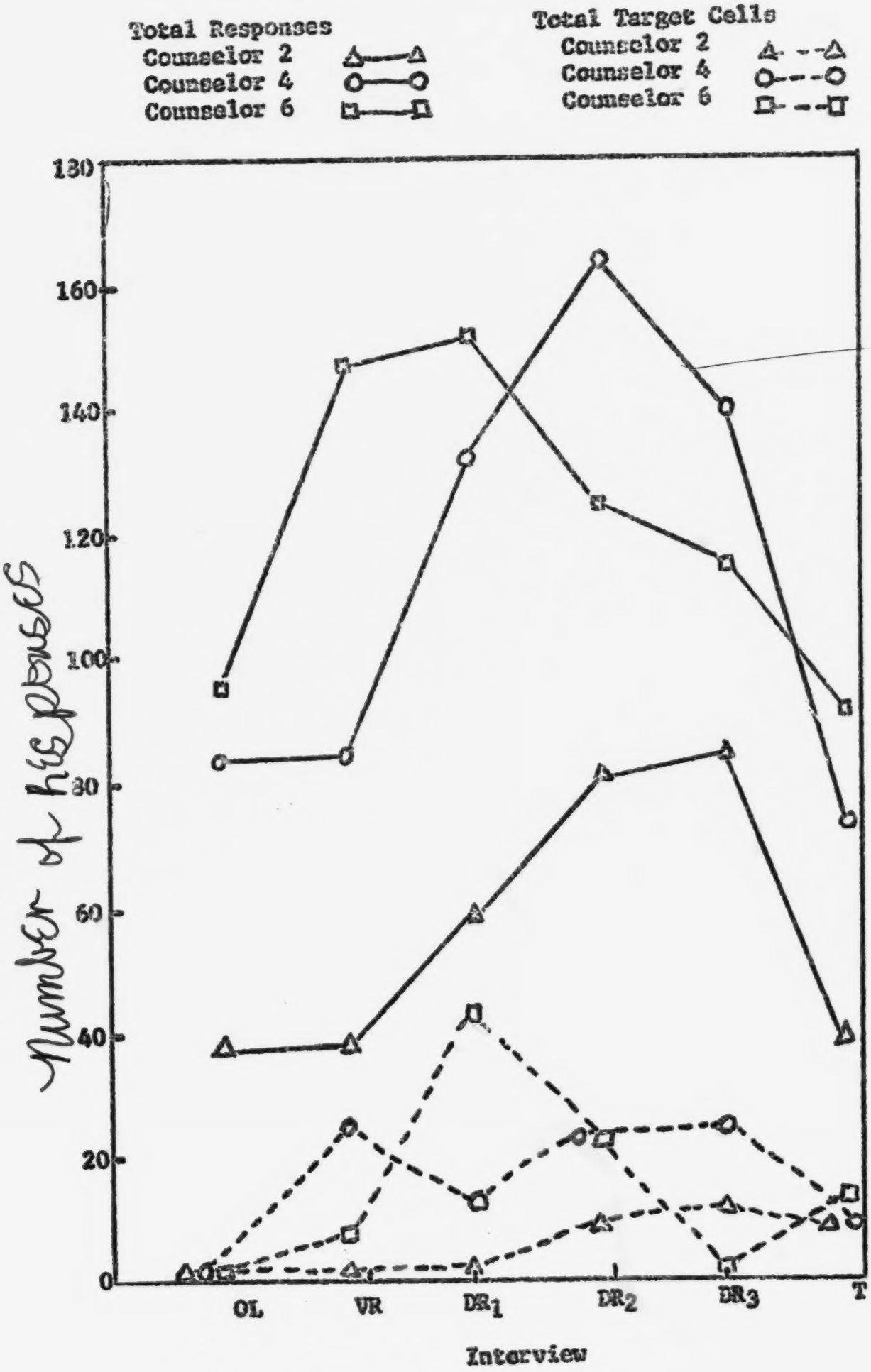

Figure 3: Percentages of Target Cell Behaviors
(Contingent and Noncontingent Reinforcement)

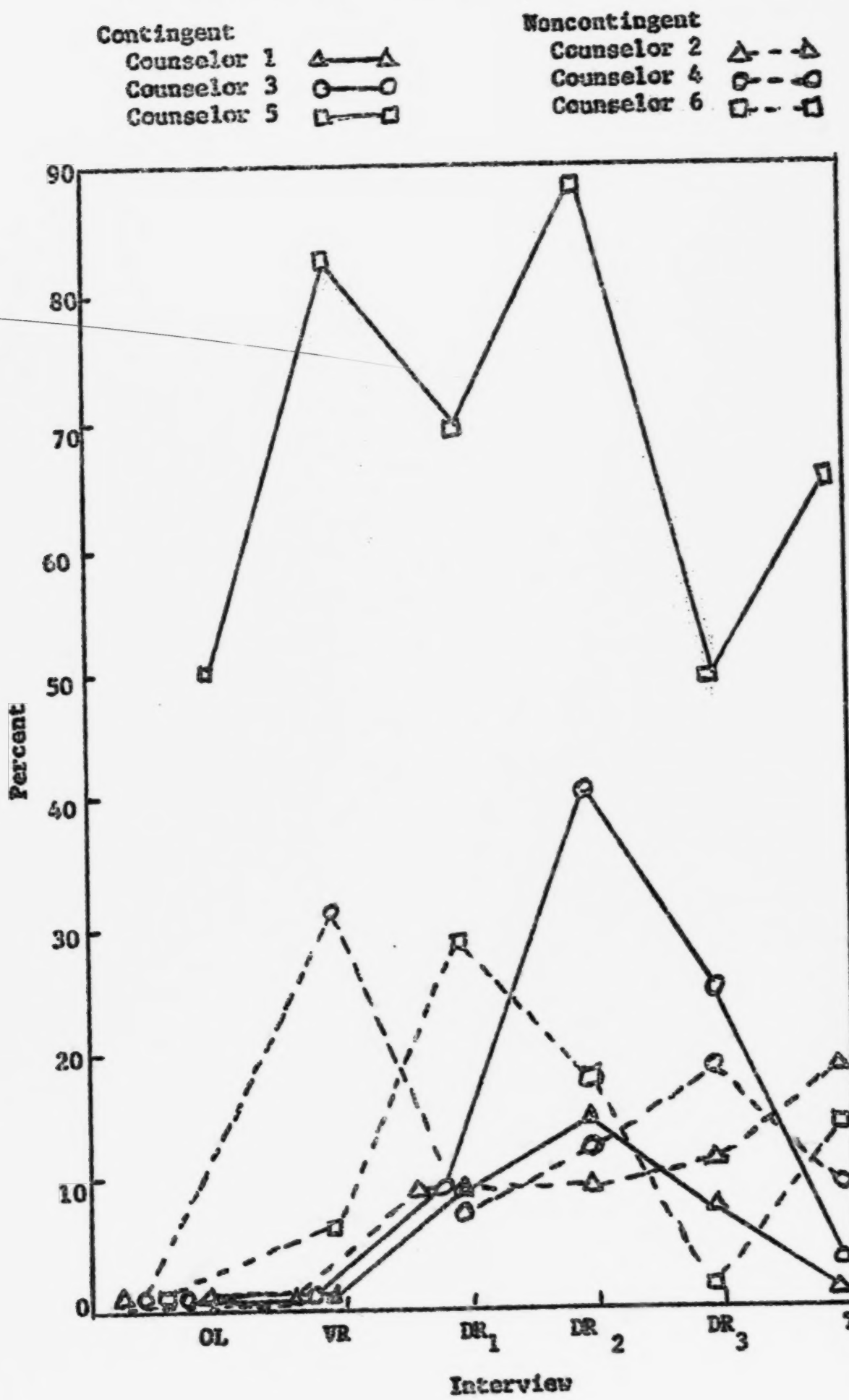

Figure 4: Percentages of Target Cell Behaviors (Experimenters and Independent Judges Ratings for Counselor Number 6)

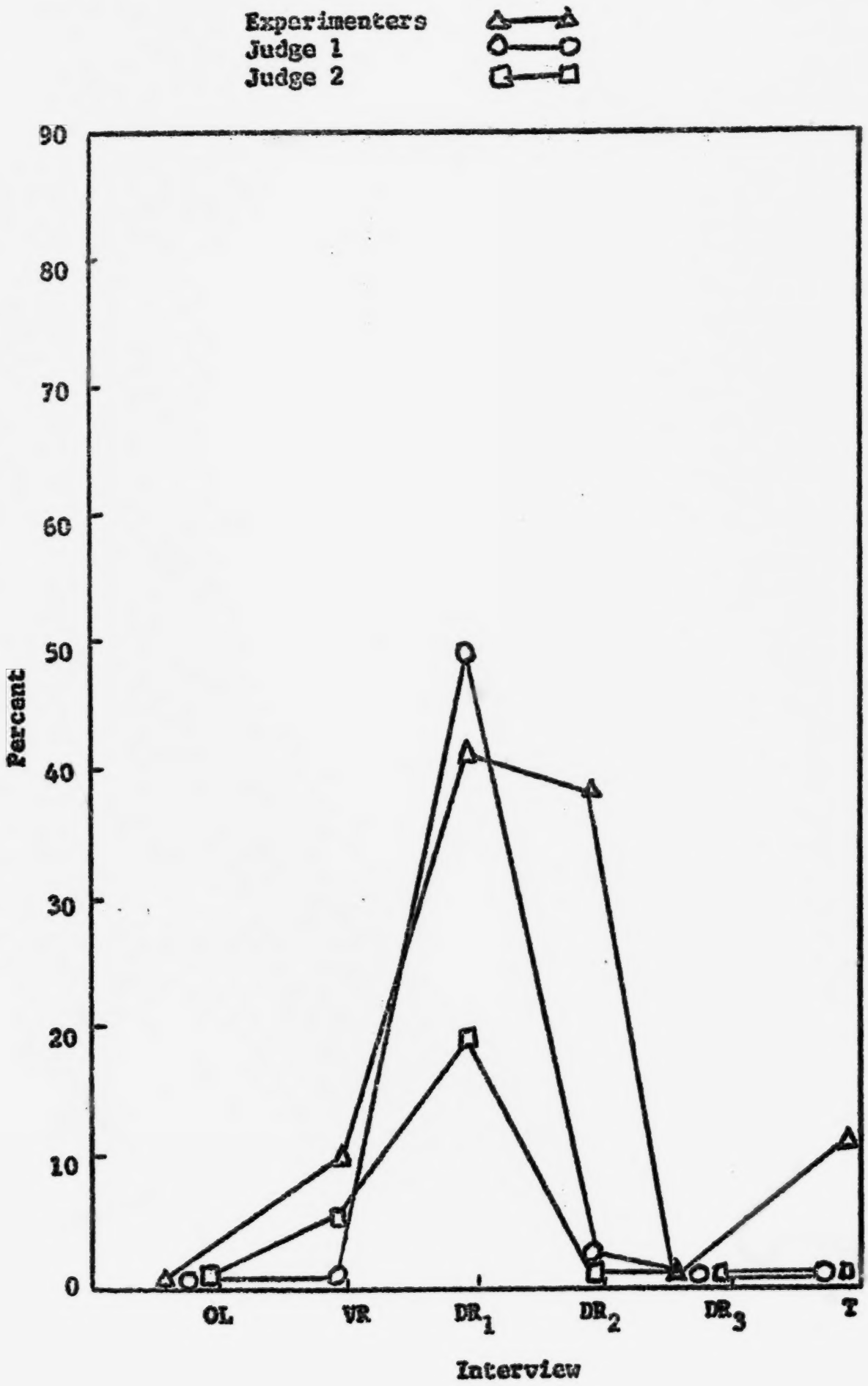

Figure 5: Percentages of Target Cell Behaviors (Experimenters and Independent Judges Ratings for Counselor Number 3)